

IN THE CLAIMS

Please amend the claims as follows:

1. (AMENDED) A method of generating a configuration for a system comprising the steps of:

defining in [said] a computer system an element model consisting of elements used to configure said system and structural relationships between said elements in said model;

creating in said computer system a plurality of components of said system that are instances of one or more elements of said model in response to configuration requests.

2. (UNCHANGED) The method of claim 1 such that said configuration requests are element requests, resource requests, and needs identifications.

3. (UNCHANGED) The method of claim 1 including the step of generating by said computer system a Bill of Materials report containing a part number and description for each component and spare part in said system configuration, resource totals, failed requests, and failed optional requests.

4. (UNCHANGED) The method of claim 1 further including the steps of:

bundling by said computer system said elements of said system configuration into product groupings; and

generating a price quotation for said system configuration.

1. (AMENDED) A method of generating a configuration for a system comprising the steps of:

defining in [said] a computer system an element model consisting of elements used to configure said system and structural relationships between said elements in said model;

creating in said computer system a plurality of components of said system that are instances of one or more elements of said model in response to configuration requests.

16. (UNCHANGED) The method of claim 1 further comprising the steps of:

identifying one or more of said plurality of components that can satisfy constraints of said plurality of components;

creating a second plurality of components to satisfy constraints if said constraints cannot be satisfied by said one or more of said plurality of components.

17. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for generating a configuration for a system, said system configuration specifying a plurality of components that comprise said system comprising:

computer readable program code configured to cause a computer to receive a configuration request;

computer readable program code configured to cause a computer to create an instance of a component in said system configuration in response to said configuration request;

computer readable program code configured to cause a computer to satisfy a plurality of constraints of said component.

18. (UNCHANGED) The article of manufacture of claim 17 wherein said configuration request is a request for a component.

19. (UNCHANGED) The article of manufacture of claim 17 wherein said configuration request is a request that identifies a need in said system.

20. (UNCHANGED) The article of manufacture of claim 17 wherein said configuration request is a request for a resource for said system.

21. (UNCHANGED) The article of manufacture of claim 17 further comprising:

computer readable program code configured to cause a computer to define a model that includes a definition for each of a plurality of components selectable for inclusion in said system configuration and constraints on said plurality of components.

22. (UNCHANGED) The article of manufacture of claim 21 wherein said computer readable code configured to cause a computer to create an instance of a component further comprises:

computer readable program code configured to cause a computer to examine said model to select said component using said component's definition in said model;

computer readable program code configured to cause a computer to create an instance of said component in said system configuration using said component's definition in said model.

23. (UNCHANGED) The article of manufacture of claim 21 wherein said computer readable code configured to cause a computer to satisfy said plurality of constraints of said component further comprises:

computer readable program code configured to cause a computer to identify said plurality of constraints of said component by examining said model;

computer readable program code configured to cause a computer to identify one or more components of said system configuration satisfy said plurality of constraints;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said plurality of constraints if said system configuration cannot satisfy said plurality of constraints.

24. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for satisfying a constraint in a system configuration comprising:

computer readable program code configured to cause a computer to identify a component of said system configuration having a constraint;

computer readable program code configured to cause a computer to determine whether said system configuration can satisfy said constraint;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said constraint if said system configuration cannot satisfy said constraint.

25. (UNCHANGED) The article of manufacture of claim 24 wherein said computer readable code configured to cause a computer to identify a component of said system configuration having a constraint further comprises:

computer readable program code configured to cause a computer to define a model that includes definitions for a plurality of components selectable for inclusion in said system configuration and constraints on said plurality of components;

computer readable program code configured to cause a computer to examine said model to determine whether said constraints on said plurality of components includes said constraint.

26. (UNCHANGED) The article of manufacture of claim 24 wherein said computer readable code configured to cause a computer to determine whether said system configuration can satisfy said constraint further comprises:

computer readable program code configured to cause a computer to examine said system configuration to determine whether another component of said system configuration is available to satisfy said constraint.

27. (UNCHANGED) The article of manufacture of claim 26 wherein said computer readable code configured to cause a computer to examine said system configuration to determine whether another component of said system configuration is available to satisfy said constraint further comprises:

computer readable program code configured to cause a computer to identify a destination component of said system configuration having available ports;

computer readable program code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component;

computer readable program code configured to cause a computer to connect said one of said available ports with said port of said component if said compatibility exists.

28. (UNCHANGED) The article of manufacture of claim 27 wherein said computer readable code configured to cause a computer to determine

whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether the physical type and logical type of said one of said available ports is compatible with said port of said component.

29. (UNCHANGED) The article of manufacture of claim 27 wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether a transfer path exists between said one of said available ports and said port of said component.

30. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for generating a configuration for a system comprising:

computer readable program code configured to cause a computer to define a model that comprises a definition for each of a plurality of components available for inclusion in said system configuration;

computer readable program code configured to cause a computer to examine said model to select one of said plurality of components using said definition in said model of said one of said plurality of components in response to a configuration request;

computer readable program code configured to cause a computer to create an instance of said one of said plurality of components in said system configuration using said definition of said one of said plurality of components.

31. (UNCHANGED) The article of manufacture of claim 30 further comprising:

computer readable program code configured to cause a computer to satisfy a plurality of constraints of said one of said plurality of components.

32. (UNCHANGED) The article of manufacture of claim 31 wherein said computer readable code configured to cause a computer to satisfy a plurality of constraints of said component further comprises:

computer readable program code configured to cause a computer to identify said plurality of constraints of said component;

computer readable program code configured to cause a computer to determine whether said system configuration can satisfy said plurality of constraints;

computer readable program code configured to cause a computer to satisfy said plurality of constraints using at least one component of said system configuration when said system configuration can satisfy said plurality of constraints;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said plurality

of constraints if said system configuration cannot satisfy said plurality of constraints.

33. (UNCHANGED) The article of manufacturing of claim 32 wherein said definition for each of a plurality of components includes said plurality of constraints, said computer readable program code configured to cause a computer to identify said plurality of constraints of said component further comprises:

computer readable program code configured to cause a computer to examine a definition of said component in said model to identify said plurality of constraints.

34. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for generating a configuration for a system, said system configuration specifying a plurality of components of said system, said article of manufacturing comprising:

computer readable program code configured to cause a computer to define a model that includes a definition for each of a plurality of components selectable for inclusion in said system configuration and constraints on said plurality of components;

computer readable program code configured to cause a computer to receive a configuration request;

computer readable program code configured to cause a computer to examine said model to select one of said plurality of components using said

component's definition in said model in response to said configuration request;

computer readable program code configured to cause a computer to create an instance of said one of said plurality of components in said system configuration using said component's definition in said model;

computer readable program code configured to cause a computer to satisfy a plurality of constraints of said one of said plurality of components.

35. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for generating a configuration for a system, said system configuration specifying a plurality of components that comprise said system, said article of manufacturing comprising:

computer readable program code configured to cause a computer to define a model that includes a definition for each of a plurality of components selectable for inclusion in said system configuration and constraints on said plurality of components.

computer readable program code configured to cause a computer to receive a configuration request;

computer readable program code configured to cause a computer to create an instance of a component in said system configuration in response to said configuration request;

computer readable program code configured to cause a computer to identify a plurality of constraints of said component by examining said model;

computer readable program code configured to cause a computer to identify one or more components of said system configuration that can satisfy said plurality of constraints;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said plurality of constraints if said system configuration cannot satisfy said plurality of constraints.

36. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for satisfying a constraint in a system configuration comprising:

computer readable program code configured to cause a computer to define a model that includes definitions for a plurality of components selectable for inclusion in said system configuration and constraints on said plurality of components;

computer readable program code configured to cause a computer to examine said model to determine whether a component of said system configuration has a constraint;

computer readable program code configured to cause a computer to determine whether said system configuration can satisfy said constraint;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said constraint if said system configuration cannot satisfy said constraint.

37. (UNCHANGED) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for satisfying a constraint in a system configuration comprising:

computer readable program code configured to cause a computer to identify a component of said system configuration having a constraint;

computer readable program code configured to cause a computer to examine said system configuration to determine whether another component of said system configuration is available to satisfy said constraint.

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said constraint if said system configuration cannot satisfy said constraint.

38. (UNCHANGED) The article of manufacture of claim 37 wherein said computer readable code configured to cause a computer to examine said system configuration to determine whether another component of said system configuration is available to satisfy said constraint further comprises:

computer readable program code configured to cause a computer to identify a destination component of said system configuration having available ports;

computer readable program code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component;

computer readable program code configured to cause a computer to connect said one of said available ports with said port of said component if said compatibility exists.

39. (UNCHANGED) The article of manufacture of claim 38 wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether the physical type and logical type of said one of said available ports is compatible with said port of said component.

40. (UNCHANGED) The article of manufacture of claim 38 wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether a transfer path exists between said one of said available ports and said port of said component.

41. (UNCHANGED) A configuration apparatus comprising:
a central processing unit (CPU);
a modeling system coupled to said CPU, said modeling system configured to define a model having information about elements available for inclusion in a system configuration;

a configurator coupled to said CPU, said configurator configured to select a plurality of said elements of said model for inclusion in said system configuration in response to configuration requests.

42. (UNCHANGED) The configuration apparatus of claim 41 wherein said model further comprises a plurality of product definitions, said configuration apparatus further comprising:

a bundling system configured to identify a plurality of products that comprise said plurality of said elements.

43. (UNCHANGED) The configuration apparatus of claim 41 wherein said model contains a class hierarchy, said plurality of elements belonging to a class of said class hierarchy.

44. (UNCHANGED) The configuration apparatus of claim 43 wherein said class hierarchy includes a plurality of component, composite, connector, container, and port classes.

45. (UNCHANGED) The configuration apparatus of claim 43 wherein said class hierarchy is comprised of a plurality of connection, container and composite hierarchies.

46. (UNCHANGED) The configuration apparatus of claim 45 wherein said container hierarchy is comprised of elements that are contained within other elements.

47. (UNCHANGED) The configuration apparatus of claim 45 wherein said connection hierarchy is comprised of elements that are connectable to other elements.

48. (UNCHANGED) The configuration apparatus of claim 45 wherein said composite hierarchy is comprised of elements as part of other elements.

Please add the following new claims:

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-49. (NEW) In a computer system, a method of generating a configuration for a system comprising the steps of:

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defining an element model consisting of elements used to configure a system and structural relationships between said elements in said model;

creating system a plurality of components of said system that are instances of one or more elements of said model in response to configuration requests;

generating a Bill of Materials report containing a part number and description for each component and spare part in said system configuration, resource totals, failed requests, and failed optional requests.--

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-50. (NEW) In a computer system, a method of generating a configuration for a system comprising the steps of:

defining an element model consisting of elements used to configure said system and structural relationships between said elements in said model;

creating a plurality of components of said system that are instances of one or more elements of said model in response to configuration requests;

bundling said elements of said system configuration into product groupings;

generating a price quotation for said system configuration.--

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-51. (NEW) In a computer system, a method of generating a configuration for a system comprising the steps of:

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defining an element model consisting of elements used to configure said system and structural relationships between said elements in said model;

creating a plurality of components of said system that are instances of one or more elements of said model in response to configuration requests;

identifying one or more of said plurality of components that can satisfy constraints of said plurality of components;

creating a second plurality of components to satisfy constraints if said constraints cannot be satisfied by said one or more of said plurality of components.--

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-52. (NEW) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for generating a configuration for a system, said system configuration specifying a plurality of components that comprise said system comprising:

computer readable program code configured to cause a computer to define a model that includes a definition for each of a plurality of

components selectable for inclusion in said system configuration and constraints on said plurality of components,

computer readable program code configured to cause a computer to receive a configuration request;

computer readable program code configured to cause a computer to create an instance of a component in said system configuration in response to said configuration request;

computer readable program code configured to cause a computer to satisfy a plurality of constraints of said component.--

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~~53~~ (NEW) The article of manufacture of claim ⁴¹~~52~~ wherein said computer readable code configured to cause a computer to create an instance of a component further comprises:

computer readable program code configured to cause a computer to examine said model to select said component using said component's definition in said model;

computer readable program code configured to cause a computer to create an instance of said component in said system configuration using said component's definition in said model.--

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~~54~~. (NEW) The article of manufacture of claim ~~52~~ wherein said computer readable code configured to cause a computer to satisfy said plurality of constraints of said component further comprises:

computer readable program code configured to cause a computer to identify said plurality of constraints of said component by examining said model;

computer readable program code configured to cause a computer to identify one or more components of said system configuration satisfy said plurality of constraints;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said plurality of constraints if said system configuration cannot satisfy said plurality of constraints.--

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~~55~~. (NEW) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for satisfying a constraint in a system configuration comprising:

computer readable program code configured to cause a computer to define a model that includes definitions for a plurality of components selectable for inclusion in said system configuration and constraints on said plurality of components;

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computer readable program code configured to cause a computer to examine said model to determine whether a definition of said component in said model identifies a constraint;

computer readable program code configured to cause a computer to determine whether said system configuration can satisfy said constraint;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said constraint if said system configuration cannot satisfy said constraint.--

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~~56~~. (NEW) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for satisfying a constraint in a system configuration comprising:

computer readable program code configured to cause a computer to identify a destination component of said system configuration having available ports;

computer readable program code configured to cause a computer to examine said system configuration to determine whether a component of said system configuration is available to satisfy said constraint,

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said constraint if said system configuration cannot satisfy said constraint.--

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~~57~~. (NEW) The article of manufacture of claim ~~56~~ 45 wherein said computer readable code configured to cause a computer to examine said

system configuration to determine whether another component of said system configuration is available to satisfy said constraint further comprises:

computer readable program code configured to cause a computer to identify a destination component of said system configuration having available ports;

computer readable program code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component;

computer readable program code configured to cause a computer to connect said one of said available ports with said port of said component if said compatibility exists.--

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~~58~~. (NEW) The article of manufacture of claim ⁴⁶~~57~~ wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether the physical type and logical type of said one of said available ports is compatible with said port of said component.--

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~~59~~ (NEW) The article of manufacture of claim ~~57~~ wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether a transfer path exists between said one of said available ports and said port of said component.--

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~~60~~ (NEW) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for generating a configuration for a system comprising:

computer readable program code configured to cause a computer to define a model that comprises a definition for each of a plurality of components available for inclusion in said system configuration;

computer readable program code configured to cause a computer to examine said model to select one of said plurality of components using said definition in said model of said one of said plurality of components in response to a configuration request;

computer readable program code configured to cause a computer to create an instance of said one of said plurality of components in said system configuration using said definition of said one of said plurality of components; and

computer readable program code configured to cause a computer to satisfy a plurality of constraints of said one of said plurality of components.--

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~~61~~. (NEW) The article of manufacture of claim ~~60~~ wherein said computer readable code configured to cause a computer to satisfy a plurality of constraints of said component further comprises:

computer readable program code configured to cause a computer to identify said plurality of constraints of said component;

computer readable program code configured to cause a computer to determine whether said system configuration can satisfy said plurality of constraints;

computer readable program code configured to cause a computer to satisfy said plurality of constraints using at least one component of said system configuration when said system configuration can satisfy said plurality of constraints;

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said plurality of constraints if said system configuration cannot satisfy said plurality of constraints.--

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~~62~~. (NEW) The article of manufacturing of claim ~~61~~ wherein said definition for each of a plurality of components includes said plurality of constraints, said computer readable program code configured to cause a computer to identify said plurality of constraints of said component further comprises:

computer readable program code configured to cause a computer to examine a definition of said component in said model to identify said plurality of constraints.--

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~~63.~~ (NEW) An article of manufacturing comprising:

a computer usable medium having computer readable program code embodied therein for satisfying a constraint in a system configuration comprising:

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computer readable program code configured to cause a computer to identify a component of said system configuration having a connection constraint;

computer readable program code configured to cause a computer to identify a destination component of said system configuration having available ports;

computer readable program code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component;

computer readable program code configured to cause a computer to connect said one of said available ports with said port of said component if said compatibility exists,

computer readable program code configured to cause a computer to create a new component in said system configuration to satisfy said connection constraint if said system configuration cannot satisfy said connection constraint.--

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~~64~~. (NEW) The article of manufacture of claim ~~63~~ wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether the physical type and logical type of said one of said available ports is compatible with said port of said component.--

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~~65~~. (NEW) The article of manufacture of claim ~~63~~ wherein said computer readable code configured to cause a computer to determine whether one of said available ports is compatible with a port of said component further comprises:

computer readable program code configured to cause a computer to determine whether a transfer path exists between said one of said available ports and said port of said component.--